

Work Order ID 139997

December 16, 2015 11:55:48 AM

139997

Page 1

Item ID: E4736-049 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Service Deck Drain Line Assembly
 Start Date: 12/16/2015 Start Qty: 6.00 ***6*** Cust Item ID:
 Required Date: 3/1/2016 Req'd Qty: 6.00 ***6*** Customer:
 Reference:

Approvals: Process Plan: SH Date: 20151217 Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
E4736	<u>A</u> <u>AA</u>

100		0.00							
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>30277</u>								

CL DEC 18 2015 6

Fabricate as per dwg E4736

Purchase Part Number: E4736-19
 Supplier: ~~FIELD AVIATION~~
 Certificate of conformity is required

110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.00							
Packaging									

6

FEB 24 2016

DAS
6
9-89

Work Order ID 139997

December 16, 2015 11:55:48 AM

139997

Page 2

Item ID: E4736-049 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Service Deck Drain Line Assembly
 Start Date: 12/16/2015 Start Qty: 6.00 ***6*** Cust Item ID:
 Required Date: 3/1/2016 Req'd Qty: 6.00 ***6*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC6- Inspect dimensions to drawing Memo	0.00 0.00							DAS 38 9-89 FEB 29 2016
130 *130* Packaging Packaging	Identify as per dwg & Stock Location. ST Memo	0.00 0.00		PPP139963					loc SP/6-04-12
140 *140* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.01							MCS APR 12 2016 PTD APR 12 2016
121 122	SF INSTALL NUT? FLARE AS PER DR QCS	6 FF			MAR 29 2016				DAS 38 9-89 MAR 29 2016

[Signature]
4/13/16

123

124

QC 7

Chemical Conversion
* Do not chemical conversion Nut and Stare *

(6)

DAS
38
9-88

APR 11 2016

MSL 6620111

Picklist Print

December 16, 2015 11:55:52 AM

Page 1

Work Order ID: 139997

139997

Parent Item: E4736-049

F4736-049

Parent Item Name: Service Deck Drain Line Assembly

Start Date: 12/16/2015

Required Date: 3/1/2016

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP REV:A NEW ISSUE 14-01-22 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
E4736-049P		Purchased		No			Each	0.0000					
F4736-049P									**	6			
Service Deck Drain Line Assembly													

E4736-9

FEB 24 2016
FEB 24

DAS
6
9-89

X6

Jan 16.02.29
MS20819-108

X2

Batch

M121978 ①
M122459 7

DAS
30
9-89

~~E4736~~

AN818-10 D

X2

Batch

M121978 ⑧
M122814 ④

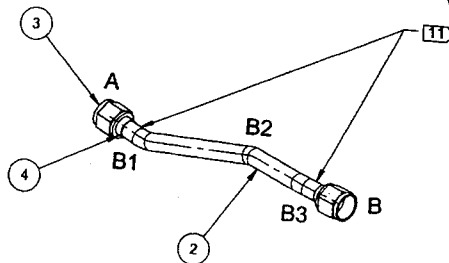
DAS
30
9-89

ITEM NO.	QTY. -049	PART NUMBER	DESCRIPTION
1	X	E4736-049	DRAIN LINE ASSEMBLY
2	1	E4736-9	TUBE
3	2	AN818-10D	NUT COUPLING
4	2	MS20819-10D	SLEEVE COUPLING

Change of Item 4 to MS20819-10D is acceptable to Engineering *[Signature]*

MAR 23 2016

Per GCF 042
DAS
30
9-89

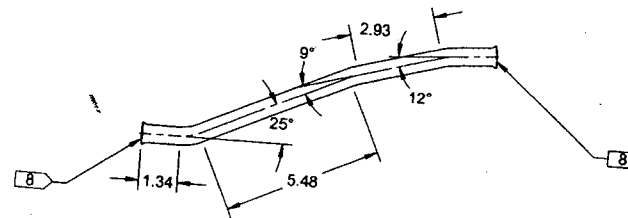
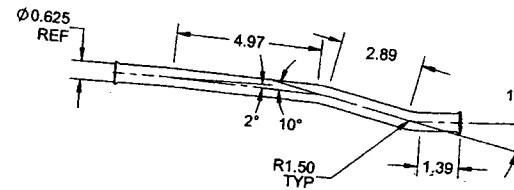


E4736-049 SERVICE DECK DRAIN LINE ASSEMBLY

NOTES:

- 1) MATERIAL: 6061-T4 ALUMINUM TUBING, $\phi 0.625 \times 0.035$ WALL
PER WW-T-700/6 OR AMS 4080 OR AMS 4082
OR QQ-A-200/8 OR QQ-A-225/8
REF DART SPEC M6061T4T0.625W.035
OR
5052-O ALUMINUM ROUND TUBING, $\phi 0.625 \times 0.035$ WALL
PER AMS-WW-T-700/4 OR ASTM-B-210-02
REF DART SPEC. M5052-OT0.625W.035
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.13 lbs
- 8) FLARE TUBE PER MS33584
- 9) PRESSURE TEST TO 200 PSI
- 10) MARK LINE WITH BRADY B-999 "DRAIN" TAPE IN LOCATIONS SHOWN

BEND #	BEND RADIUS (IN)	DISTANCE FROM END (IN)	BEND ANGLE (DEG)	PITCH (DEG)
END A	-	0.00	-	-
1	1.50	1.28	25.0°	0.0°
2	1.50	5.38	16.0°	278.0°
3	1.50	11.52	30.0°	150.0°
END B - TL	-	13.46	-	-



E4736-9 TUBE

30151217

5H139997

DESIGN	BC	EAGLE COPTERS LTD	REV. A
DRAWN	BC	CALGARY, ALBERTA, CANADA	
CHECKED	BC	DRAWING NO.	
MFG. APPR.	N/A	E4736	
APPROVED	BC	TITLE	
DE APPR.	BC	DRAIN LINE	
DATE	12.11.01	SCALE	NTS

COPYRIGHT © 2012 BY EAGLE COPTERS LTD
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS
NOT BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT
WRITTEN PERMISSION FROM EAGLE COPTERS LTD.



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO30777**

Purchase Order Date 12/18/2015

PO Print Date 12/18/2015

Page Number 2 of 3

Order From :

VC-ATB001

Ship To : DART AEROSPACE LTD

AGGRESSIVE TUBE BENDING
9750 - 188TH STREET
SURREY, B.C. V4N 3M2
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 604-882-4872

Ship To Contact

Ship To Phone

Ship Via: FedEx Overnight collect

Ship Acct:

Buyer

Customer POID

Customer Tax #

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

Destination-Collect

Line Total: \$525.06

4 E4736-7 Tube 2/12/2016 FN 6.00 \$67.51 \$405.06
Yes Each
2/12/2016

Line Total: \$405.06

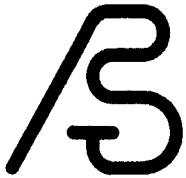
5 E4736-9 Tube 2/12/2016 FN 6.00 \$99.42 \$596.52
Yes Each
2/12/2016

Line Total: \$596.52

6 71400-20 SHOP SUPPLIES 2/12/2016 1.00 \$73.53 \$73.53
Yes Each
2/12/2016

Note:

12/18/2015

**AGGRESSIVE TUBE BENDING INC.**

9750 188th Street
Surrey, BC V4N 3M2
Phone: 1-604-882-4872
Fax: 1-604-882-4873

PACKLIST

Packlist ID: 27851
Date: 2016-02-15
Page: 1 of 1

Shipped By: TERRY

Sold To Address	Ship To Address
DART AEROSPACE LTD 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7 CANADA	DART AEROSPACE LTD 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7 CANADA

CUSTOMER ID		CUSTOMER PO		PAYMENT TERMS		F.O.B.	
2883		PO30777		Net 30		OUR SHOP	
SALES REP ID		SHIPPING METHOD			SHIP DATE	OUR ORDER NUMBE	
YT		FEDEX 1-800-463-3339			<u>FEB 18/16</u>	15-1544	
QUANTITY		CUSTOMER					
ORD	SHP	BCK	PART ID	DESCRIPTION	PART NO.	DRAWING #	

6	6	0		SUP/ANNEAL/BEND .375 X. 035 6061 T6	E4736 1	Rev: A
6	6	0		SUP/ANNEAL/BEND .625 X. 035 6061 T6	E4736 3	Rev: A
6	6	0		SUP/ANNEAL/BEND .375 X. 035 6061 T6	E4736 5	Rev: A
6	6	0		SUP/ANNEAL/BEND .375 X. 035 6061 T6	E4736 7	Rev: A
6	6	0		SUP/ANNEAL/BEND .625 X. 035 6061 T6	E4736 9	Rev: A

16/01/24

ORDER SPECIFICATIONS

RECEIVED BY: _____

KAISER ALUMINUM FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT

<http://Dallas.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CUSTOMER PO NUMBER 61-3160822		CUSTOMER PART NUMBER AT/ 625 035/734		PRODUCT DESCRIPTION Seamless Tube/Pipe	
KAISER ORDER NUMBER 217053	LINE ITEM 003	SHIP DATE 09/19/2014	KAISER LOT NUMBER F00172978	ALLOY 6061	TEMPER T6
WEIGHT SHIPPED 687.000 LB	QUANTITY 749.000 PCS	S/L NUMBER 216925	DIAM/DAF/THICKS	WIDTH	LENGTH 12.000 FT
SHIP TO MARMON/KEYSTONE CORP 32944 US HIGHWAY 6 SPRING VALLEY, IL 61362 USA			SOLD TO MARMON/KEYSTONE CORP 1000 REMINGTON BLVD SUITE 305 BOLINGBROOK, IL 60440 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON% IACS	BEND
F00172978	0001	1	47.6	44.6	12.5	N/A	N/A	N/A
F00172978	0002	1	47.2	44.1	13.5	N/A	N/A	N/A
F00172978	0003	1	49.4	45.8	13.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Er	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D73277	.63	.31	.25	.06	1.00	.10	.09	.03	.00	.00	.00	.01	.02

Applicable Requirements:

Description: MADE IN USA
OD: 0.625"; Wall: 0.035"; Round #
AMS-4082P ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS-4082P, WAS NOT OILED.
COMPLIES TO DIN EN 10204 JAN 2005
COMPLIES TO DFAR 252.225-7001 and DFAR 252.225-7014
No Weld Repair. Mercury Free.

Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA

Plant Serial: 00017937
Kaiser Order Number: 217053
Line Item: 003

KAISER
ALUMINUM
FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT

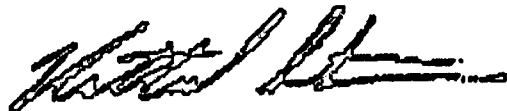
<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W WILLIS ROAD
CHANDLER, AZ 85226

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Nathaniel Stevens, Quality Manager



QC REVIEWED

JAN 26 2015



Marmon/Keystone Canada Inc.

SPECIALTY STEELS

27447 56th Avenue
Langley BC CAN V4W 3X1
TEL. 604/857-9844
FAX. 604/857-9860

PACKING SLIP

PAGE...: 1
Order : 8124257
Date...: 01/21/2016

SOLD TO: _____

SHIPPED TO: _____

AGGRESSIVE TUBE BENDING INC.
9750 - 188TH STREET

AGGRESSIVE TUBE BENDING
9750 - 188TH STREET

SURREY BC CAN V4N 3M2

SURREY BC CAN V4N 3M2

SHIP VIA.....: CHEETAH WOG
F.O.B.....: WHSE PARTIAL
YOUR ORDER NO.....: 15-1544

SALESPERSON.....: B. Gysbertsen

	Ordered	Description	Number Pieces	Quantity Shipped	Back Ordered
01	60 /FT	ALUMINUM SMLS TUBE ATS .375 .035 D6061 HT#.....: F00168137 Total... <i>50' 12" LONG</i>	<u>5</u> (5)	<u>60/FT</u> 60/FT ✓	
02	60 /FT	ALUMINUM SMLS TUBE ATS .625 .035 D6061 Total... <i>15-1544 DART AEROSPACE JAN 21/16 TERRY</i>	<u> </u>	<u>0/FT</u>	60FT

Packaging: 1 C. Tube

Total Weight.....: 2.6

Customers.: _____



A Marmon Distribution Services/Berkshire Hathaway Company



Marmon/Keystone Canada Inc.

SPECIALTY STEELS

27447 56th Avenue
Langley BC CAN V4W 3X1
TEL. 604/857-9844
FAX. 604/857-9860

PACKING SLIP

PAGE...: 1
Order : 8124257
Date...: 01/27/2016

SOLD TO: _____

AGGRESSIVE TUBE BENDING INC.
9750 - 188TH STREET

SURREY BC CAN V4N 3M2

SHIPPED TO: _____

AGGRESSIVE TUBE BENDING
9750 - 188TH STREET

SURREY BC CAN V4N 3M2

SHIP VIA.....: CHEETAH WOG
F.O.B.....: WHSE PARTIAL
YOUR ORDER NO.....: 15-1544

SALESPERSON.....: B. Gysbertsen

	Ordered	Description	Number Pieces	Quantity Shipped	Back Ordered
02	60 /FT	ALUMINUM SMLS TUBE ATS .625 .035 D6061 HT#.....: F00172978 Total... 15-1544 DART AEROSPACE JAN 29/16 TERRY 50/12'	5 5	60/FT 60/FT	

Packaging: 2 C. Tube

Total Weight.....:

4.6

Customers.: _____



A Marmon Distribution Services/Berkshire Hathaway Company

KAISER ALUMINUM FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: 61-31469-1		CUSTOMER PART NUMBER: AT/.375.035/734		PRODUCT DESCRIPTION: Seamless Tube/Pipe	
KAISER ORDER NUMBER: 216675	LINE ITEM: 004	SHIP DATE: 08/12/2014	KAISER LOT NUMBER: F00168137	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 653.000 LB	QUANTITY: 1233.000 PCS	B/L NUMBER: 216682	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: MARMON/KEYSTONE CORP 32944 US HIGHWAY 6 SPRING VALLEY, IL 61362 USA			SOLD TO: MARMON/KEYSTONE CORP 1000 REMINGTON BLVD. SUITE 305 BOLINGBROOK, IL 60440 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON% IACS	BEND
F00168137	0001	1	46.1	42.4	14.0	N/A	N/A	N/A
F00168137	0002	1	46.2	42.5	13.5	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D73273	.57	.31	.22	.06	.98	.09	.11	.03	.00	.00	.00	.01	.02

Applicable Requirements:

Description: MADE IN USA
 OD: 0.375"; Wall: 0.035"; Round @
 AMS-4082P ASTM B210-12 WW-T-700/6F
 WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS-4082P, WAS NOT OILED.
 COMPLIES TO DIN EN 10204 JAN 2005
 COMPLIES TO DFAR 252.225-7001 and DFAR 252.225-7014
 No Weld Repair. Mercury Free.

Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA

Plant Serial: 00017721
 Kaiser Order Number: 216675
 Line Item: 004

**KAISER
ALUMINUM**
FABRICATED PRODUCTS

*Best in
Class*

CERTIFIED TEST REPORT

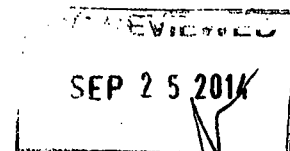
<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Nathaniel Stevens, Quality Manager



Plant Serial: 00017721
Kaiser Order Number: 216675
Line Item: 004

Patrick Smith

From: Harvey Siemens
Sent: March-08-16 3:52 PM
To: William Monterroza
Subject: RE: E4736 issues with the sleeve coupling

Sounds good to me Will.

HS

From: William Monterroza
Sent: March-08-16 1:52 PM
To: Harvey Siemens <hsiemens@dartaero.com>
Subject: RE: E4736 issues with the sleeve coupling

Harvey,
Evidently Eagle has ordered qty six of these from us... see attached sales order.

If you'd like, I can sign these deviations and attach your email below with concurrence.

Thanks,
Will

Will Monterroza
X 250
M 1 613 677-9898
S dart-wmonterroza

From: Harvey Siemens
Sent: Tuesday, March 08, 2016 3:10 PM
To: William Monterroza <wmonterroza@dartaero.com>
Subject: RE: E4736 issues with the sleeve coupling

Will,

Not sure who we are making these parts for? Presumably not for stock.

Yes, those sleeves should be the "D" version or whatever the call out is for them to be aluminum.

If you need it I am happy to sign off a deviation, but I would be somewhat surprised to see us making these parts since they are for 407HP and Eagle manufacturing seems to be looking after all the building of parts and I didn't think we were one of their vendors.

Let me know if you need anything else.

HS

From: William Monterroza
Sent: March-08-16 12:56 PM
To: Harvey Siemens <hsiemens@dartaero.com>
Subject: E4736 issues with the sleeve coupling

Hi Harvey,

The drawing E4736 (attached) calls out for sleeve couplings MS20819-6J/-10J on the different configurations within the drawing.

Assembly pointed out that the -6J and -10J are stainless steel couplings, and they figure that these should really be -6D and -10D sleeve couplings, which they have stock of.

I see in the Spec for MS20189 that the Code D is inactive for new design or replacement parts, and they claim to use no code or Code J or K. Seems a bit off that even though this is stated, we would put aluminum and steel together for galvanic corrosion reasons. Do you know have any opinions on what they should use?

Will Monterroza, P. Eng., M. Sc., MBA
Director of Engineering and Programs - Hawkesbury

DART AEROSPACE
T 1 613 632-5200 > 250
M 1 613 677-9898
S dart-wmonterroza

www.dartaerospace.com

